

Elton '565); Claim 30 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Wood and Elton '565, and further in view of Takaoka et al. (U.S. Patent No. 5,094,703, hereinafter Takaoka); and Claims 33 and 35-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wood and Elton '565 and further in view of Elton et al. (U.S. Patent No. 4,622,116, hereinafter Elton '116).

Independent Claim 20 is directed to a method for mounting a tube in a space in a rotating electric machine defined by a restricting area having a shape corresponding to a shape of the tube. The method includes the steps of inserting the tube into the space, pressurizing the tube with a hot pressure medium having a temperature that causes the tube to soften and expand until an outer periphery of the tube assumes the shape of the restricting area of the space, and substituting a cold pressure medium for the hot pressure medium while maintaining a pressure constant to the pressure used in the pressurizing step causing the tube to solidify and permanently assume an expanded shape.

Madsen discloses a technique for filling a metal pressure tube with a solidified resin in order to connect slot wedges within a winding slot.¹ A liquid plastic is pressed into the pressure tube through a filling tube.² A portion of the filling tube is then heated to create a hardened plastic plug within the filling tube.³ The hardened plug maintains the pressure in the pressure tube, and the injected plastic solidifies within the pressure tube.⁴ The result is an expanded metal pressure tube filled with solidified plastic.

Compared to Madsen, Claim 20 requires that a tube be mounted in a space, where the tube itself solidifies and permanently assumes an expanded shape. This is accomplished by pressurizing the tube with a hot pressure medium causing the tube to

¹See Madsen, at column 2, lines 25-36.

²Id. at column 3, lines 31-33.

³Id. at column 3, line 34 - column 4, line 1.

⁴Id. at column 4, lines 1-5.

soften and expand to assume the shape of the restricting area, and then substituting a cold pressure medium for the hot pressure medium to cause the tube to solidify. The result is a tube through which coolant may flow. Madsen does not require the use of a hot pressure medium to cause a tube to soften and expand until an outer periphery of the tube assumes the shape of the restricting area, and then substituting a cold pressure medium for the hot pressure medium causing the tube to solidify and permanently assume the expanded shape, but rather, includes a technique whereby a pressure tube is filled with a resin that becomes hardened after setting, thereby causing the metallic pressure tube surrounding the hardened resin to maintain its shape. Accordingly, it is respectfully submitted that Madsen does not teach or suggest the method of mounting a tube into a space using both a hot pressure medium and a cold pressure medium as required by Claim 20. Because Claims 21 and 22 depend from Claim 20, and because Claim 39 includes the features relevant to the discussion above, it is respectfully submitted that these claims also patentably define over Madsen.

Independent Claim 23 is directed to a rotating electric machine including a stator having a stator yolk and stator slots separated by stator teeth extending inwardly from the stator yolk and having an undulated side and a flat side. Stator cable windings of an insulated cable fit into concave portions of the undulated side of the stator slots and form spaces between the insulated cable windings and the flat side of the stator teeth. At least one tube made of a dielectric material is mounted in the stator slots so as to fill the spaces between the insulated cable windings and the flat side of the stator teeth.

Wood is directed to packing means for supporting rectangular bar-type windings in a stator slot. As shown in Figure 1 of Wood, both non-inflatable packers 6 and inflatable tubes 8 are used to support the rectangular bar-type windings 3 in the stator slots 2.

Compared to Wood, Claim 23 requires that the stator teeth have an undulated side and a flat side, and that stator cable windings fit into concave portions of the undulated

side of the stator slots and form spaces between the insulated cable windings and the flat side of the stator teeth. Wood does not require that the windings are stator cable windings of an insulated cable, but rather includes bar-type windings which are rectangular, and fit into stator slots having two flat sides. Accordingly, it is respectfully submitted that Wood does not teach or suggest either the structural configuration of the stator slots or the use of an insulated cable as a stator cable winding as required by Claim 23. Because Claims 24-28 depend from Claim 23, it is respectfully submitted that these dependent claims also patentably define over Wood.

Elton '565 is asserted for its teaching of a cable having stranded conductors surrounded by a first inner semiconducting insulation layer, and intermediate solid insulation layer, and an outer semiconducting insulation layer connected to ground. However, Elton '565 does not teach or suggest what is also lacking in Wood, namely, using an insulated cable for a stator cable winding, and the structural configuration of the stator slots. Elton '565 is directed to a pyrolyzed glass fiber layer, and does not teach or suggest using a cable as a winding of a rotating electric machine. Consequently, it is respectfully submitted that no matter how Wood is combined with Elton '565, the proposed combination fails to teach or suggest the invention defined by independent Claim 23, or Claims 29, 31, 32, 34, and 38, dependent therefrom.

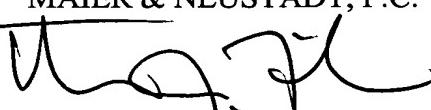
Takaoka is asserted for its teaching that the selection of a particular diameter of a conductor size is contingent upon the amount of power that is transmitted. Aside from the diameter of a conductor, there is nothing in Takaoka that would cure the above-described deficiencies regarding the proposed combination of Wood and Elton '565. Consequently, it is respectfully submitted that no matter how Wood is combined with Elton '565 and Takaoka, the proposed combination fails to teach or suggest the invention defined by independent Claim 23, or Claim 30, dependent therefrom.

Elton '116 is asserted for its description of forming different overlapping layers of insulation having the same coefficient of thermal expansion in order to prevent thermal

stress which would separate and crack the materials causing failure of the insulation. Aside from a selection of a coefficient of thermal expansion, there is nothing in Elton '116 that would cure the above-described deficiencies regarding the proposed combination of Wood and Elton '565. Consequently, it is respectfully submitted that no matter how Wood is combined with Elton '565 and Elton '116, the proposed combination fails to teach or suggest the invention defined by independent Claim 23, or Claims 33 and 35-37, dependent therefrom.

Consequently, in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 20-39 is patentably distinguishing over the asserted prior art. The present application is therefore believed to be in condition for formal allowance, and an early and favorable reconsideration of this application is therefore requested.

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